

Docket No. 243433US2SX

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF: Koji YAMAKAWA, et al.

SERIAL NO: New Application

GAU:

FILED: Herewith

EXAMINER:

FOR: SEMICONDUCTOR DEVICE AND METHOD FOR MANUFACTURING THE SAME

**INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97**

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

**REFERENCES**

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

**RELATED CASES**

- ☐ Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

**CERTIFICATION**

- ☐ Each item of information contained in this information disclosure statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

**DEPOSIT ACCOUNT**

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check or credit card payment is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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**STATEMENT OF RELEVANCY**

**Reference AO on Form PTO-1449:**

This patent shows FeRAM COP (capacitor on plug) structure that has Ru plug and SRO ( $\text{SrRuO}_3$ ) electrodes. The capacitor is patterned by RIE using  $\text{SiO}_2$  hardmask. SRO electrodes suppress Ru plug oxidation during capacitor formation process.

**Reference AW on Form PTO-1449:**

The paper describes Pt/SRO/PZT/SRO/PT capacitor structure and its electrical properties. The SRO is patterned using  $\text{SiO}_2$  hardmask, not SRO hardmask.

Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DOCKET NO. 243433US2SX		SERIAL NO. New Application	
LIST OF REFERENCES CITED BY APPLICANT				APPLICANT Koji YAMAKAWA, et al.			
				FILING DATE Herewith		GROUP	
<b>U.S. PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AG						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						
	AN						
<b>FOREIGN PATENT DOCUMENTS</b>							
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES                      NO		
	AD	2002-289809	10/4/02	Japan			X
	AP						
	AQ						
	AR						
	AS						
	AT						
	AU						
	AV						
<b>OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
	AW	Koji YAMAKAWA, et al., "CHARACTERISTICS OF PZT FILMS WITH SRO/PT STACK ELECTRODES FOR HIGH DENSITY MBIT FERAM DEVICES", Integrated Ferroelectrics, 2001, Vol. 39, Pages 31-40					
	AX						
	AY						
	AZ					<input type="checkbox"/> Additional References sheet(s) attached	
Examiner					Date Considered		
*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							